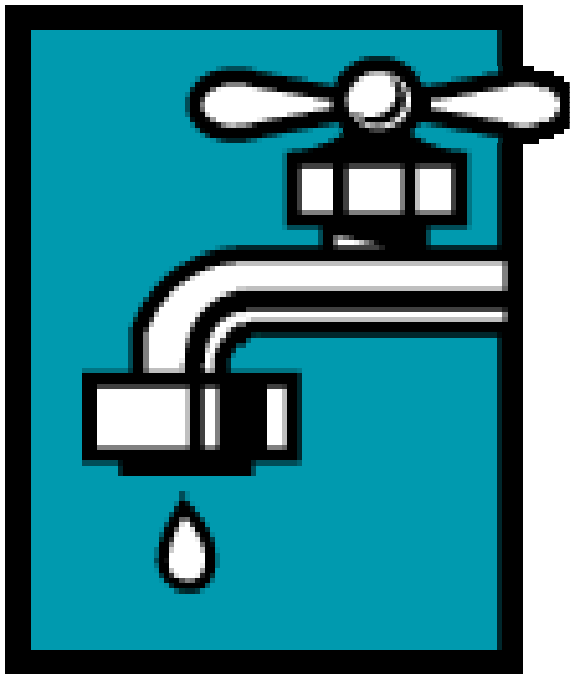
City of Salina

MUNICIPAL WATER CONSERVATION



City of Salina

Martha Tasker, Director of Utilities

April 8, 2009

City of Salina

Water Supplies are Limited in Kansas

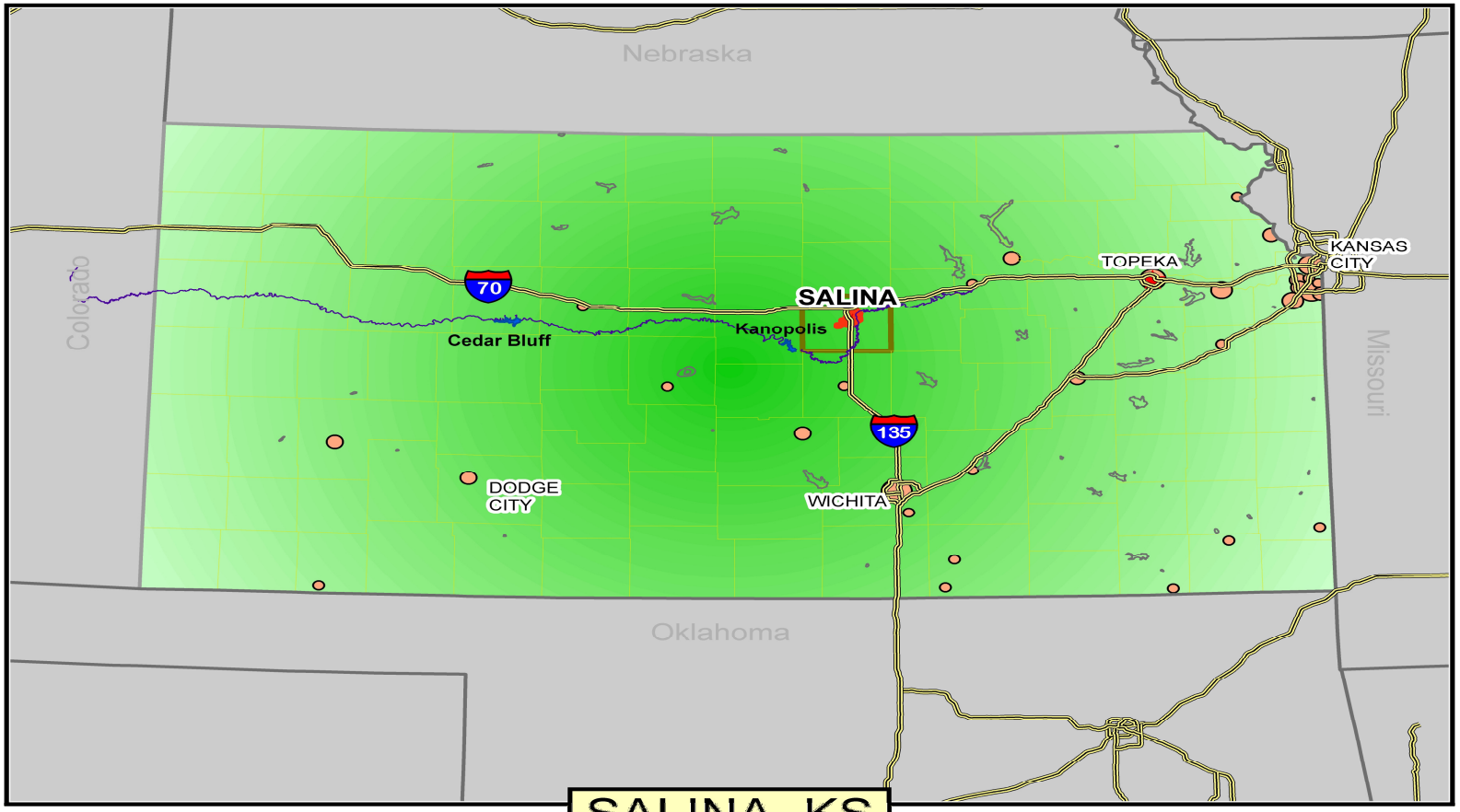
Hydrologic conditions vary across the state.

- Western Kansas: 16 - inches precipitation
- Salina, Kansas: 32 - inches precipitation
- Eastern Kansas: 40 - inches precipitation

Water Supply

- Western Kansas: Groundwater
- Salina, Kansas: Combination of Groundwater & Surface Water
- Eastern Kansas: Surface Water

SALINA, KANSAS



- Population – 46,732
- Water Customers:
  - Residential – 17,726
  - Commercial/Industrial – 2,078

	2006	2007	2008
•Peak Day –	12.2 MGD	10.7 MGD	9.3 MGD
•Winter Day –	3.3 MGD	4.2 MGD	3.9 MGD
•Year -	2.42 B.	2.29 B.	2.13 B.

Water System
Peak Daily Treatment Capacity

- **Water Treatment Plant Capacity**
  - **20 MGD**
- **Groundwater Supply**
  - **15 wells = 10 MGD**
- **Surface Water Supply**
  - **Smoky Hill River = 10 MGD**
- **Contingency Operation**
  - **3 Schilling Wells = 2 MGD**

Water System Load Balancing

- Typical Yearly Operation
  - 60% Surface Water from the Smoky Hill River
  - 40% Groundwater from wells
- River Water
  - More cost effective to treat
  - Conserve groundwater levels
  - Comply with available water rights
  - Variable flow rates
- Well Water
  - More costly to treat (hardness)
  - Slow recharge rate
  - Long-term supply (slow change of groundwater levels)


July 26, 2006

City of Salina

Municipal Water Conservation Plan

- Long-Term Water Use Efficiency
  - Water Use Conservation Goal
  - Water Conservation Practices
    - Education
    - Management
    - Regulation
- Drought/Emergency Response
  - Stage 1: Water Watch
  - Stage 2: Water Warning
  - Stage 3: Water Emergency

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Long-Term Water Use Efficiency

Water Use Conservation Goal

- Salina used 116 gallons per capita day (gpcd) in 2007 and 109 gpcd in 2008
  - 126 gpcd over ten year period from 1998-2007
    - gpcd figure includes:
      - Water sold to residential and commercial customers;
      - Water distributed for free public services (fire protection, street cleaning, etc.); and
      - Water lost by leaks in the water distribution system
    - does not include:
      - Municipally supplied industrial water for industries that use over 200,000 gallons per year

City of Salina

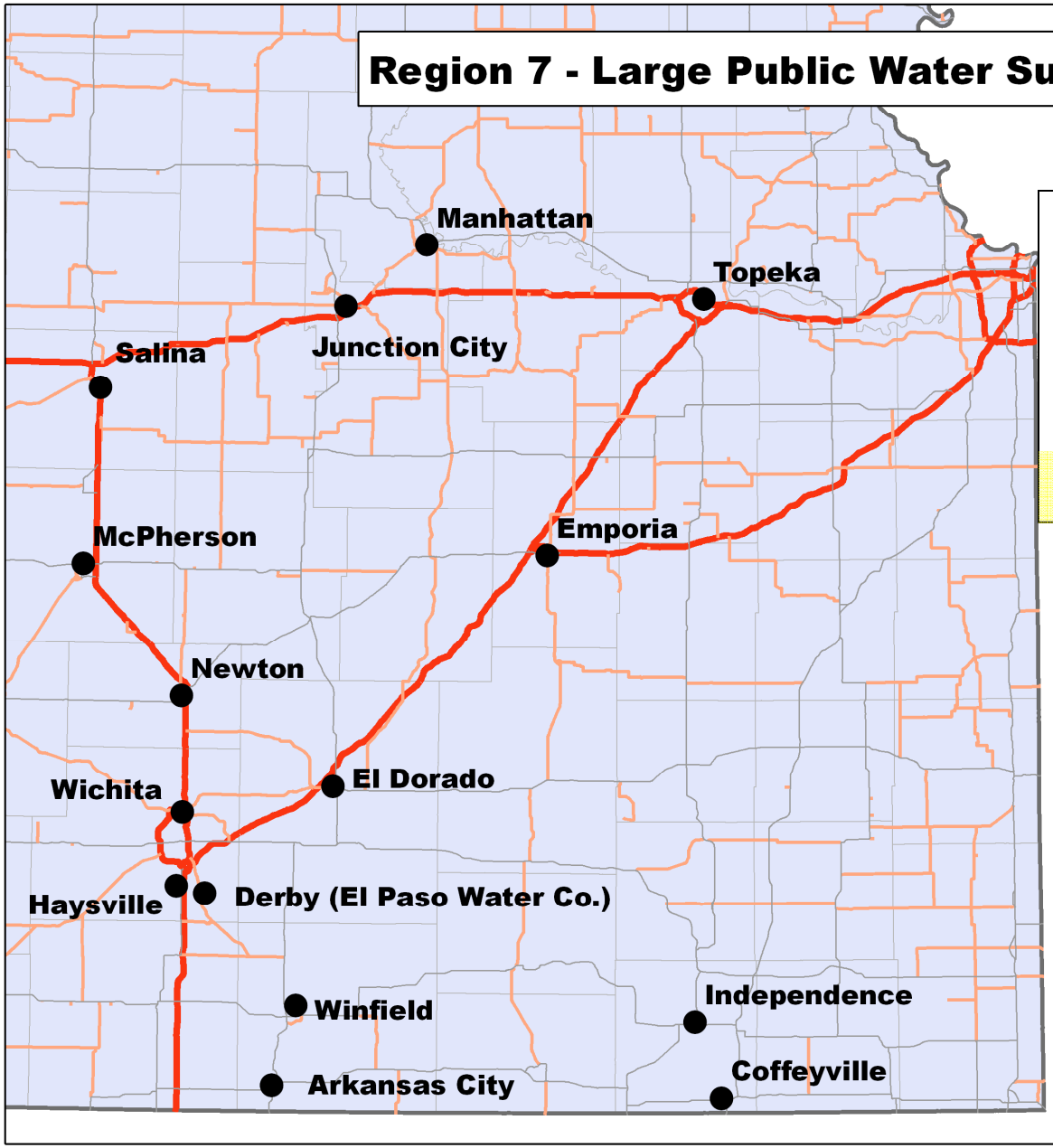
TABLE 9
WATER USE STATISTICS FOR LARGE PUBLIC WATER SUPPLIERS
REGION 7, 2007

Public Water Supplier	GPCD	Regional Average GPCD	Percent Difference	Cost per 10,000 gal/month	Percent Metered Free	Percent Unacc. For
Coffeyville	232	135	+72	$44.88	21	23
Emporia	176	135	+31	$27.73	5	18
Junction City	150	135	+11	$25.18	4	21
McPherson	146	135	+8	$24.00	1	7
El Dorado	145	135	+7	$25.48	2	na
Wichita	141	135	+5	$19.49	1	4
Independence	141	135	+4	$27.87	1	22
Manhattan	141	135	+4	$26.34	6	9
Topeka	138	135	+2	$35.85	6	16
Winfield	129	135	-5	$32.55	0	14
Arkansas City	125	135	-8	$59.12	3	23
Salina	116	135	-14	$35.93	2	11
Newton	103	135	-24	$31.10	1	8
Haysville	94	135	-30	$19.38	4	11
Derby (El Paso Water Co.)	93	135	-31	$39.60	<1	na
Average	135	135	--	$32.01	4	14

Source: Kansas Municipal Water Use 2007 (KWO)

City of Salina

Region 7 - Large Public Water Suppliers



KWO Definition:

"Small public water suppliers serve fewer than 500 customers, medium public water suppliers serve between 500 and 9,999 customers and large public water suppliers serve 10,000 customers or more."

Source: Municipal Water Use 2007 (KWO)

Water Conservation Practices

Education

- **Current water use efficiency practices:**
  - The City makes available information on water conserving landscape practices through publications, local news media, seminars or other appropriate means.
  - Water bills show the amount of water used in cubic feet during the billing period and the number of cubic feet used last year during the same billing period.
  - Water conservation tips are provided with the monthly water bills during the summer months.
  - Information is provided to the general public on lawn water requirements on a regular basis during the summer months.
- **Proposed water use efficiency practices:**
  - Water bills will show the amount of water used in gallons and the cost of water.
    Target Date: 1 July 2009
  - Water bills will show the amount of water used in gallons during this billing period and the number of gallons used last year during the same billing period.
    Target Date: 1 November 2009
  - The Board of Education and teachers will be encouraged to become involved in water conservation through classroom lectures and incentives for children to conduct home checks.
    Target Date: 1 August 2010

Water Conservation Practices

Management

- **Current water use efficiency practices:**
  - All raw water intakes have meters installed and the meters are repaired or replaced promptly. Raw water meters are tested for accuracy at least once every three years. Each meter is repaired or replaced if its test measurements are not within two percent of the actual volume of water passing through the meter.
  - All raw water meters and individual service connections are read at least on a monthly basis.
  - The City currently conducts a water management review, which results in a specified change in water management practices or implementation of a leak detection and repair program or plan, whenever the amount of unsold water exceeds 20 percent of the total raw water diverted for a four month time period.
  - Water sales are based on the amount of water used.
  - Meters are installed at all residential service connections and at all other service connections, including separate meters for municipally owned irrigation systems.
  - Meters at each individual service connection (one inch or less) are replaced on a regular basis, at least once every 15 to 20 years.
  - The current water rate structure, adopted in June 2008, is an excess use rate where the unit price for water increases after a specified volume consumed is exceeded. The City's excess use rate structure is based around average winter consumption in order to promote water conservation.
  - The City's water distribution system is divided into five pressure zones. The pressure zones have been established to provide adequate water pressure to customers. Water pressure is monitored daily at each of the City's pumping facilities. Water pressure at the customers' premises is checked at the customer's request.
  - Implemented an irrigation management program for irrigated grounds.

City of Salina

Water Conservation Practices

Management cont.

- **Proposed water use efficiency practices**:
  - Individual service connection meters between one inch and six inches will be tested for accuracy at least once every five years and meters six inches and above will be tested on at least an annual basis. Each meter will be repaired or replaced if its test measurements are not within two percent of the actual volume of water passing through the meter. Target Date: 1 July 2009
  - Develop and implement a program to incorporate water conserving landscape principles into future landscape development projects, including renovation of existing landscapes. Target Date: 1 July 2010
  - Develop and implement a water conservation rebate program. Target Date: 1 July 2011
  - Encourage the recycling of wastewater for selected industrial or irrigation purposes.

Water Conservation Measures

Regulation

- Current water use efficiency practices:
  - All new or renovated construction requires toilets that use 1.6 gallons per flush or less and low flow shower heads that use 2.5 gallons per minute or less.
  - An ordinance was adopted in June 2008 which prohibits waste of water.
  - An ordinance was adopted in June 2008 which prohibits outdoor watering between the hours of 10:00am and 6:00pm effective between June 1 and September 30.
  - An ordinance was adopted in June 2008 which allows the governing body of the City to adopt or amend a water conservation rebate program.

- Proposed water use efficiency practice:
  - The ordinance for restricting outdoor watering between the hours of 10:00am and 6:00pm effective between June 1 and September 30 will be revised to include customers of the public water supply and all private domestic water well owners within the City limits.
    Target Date: 1 July 2009

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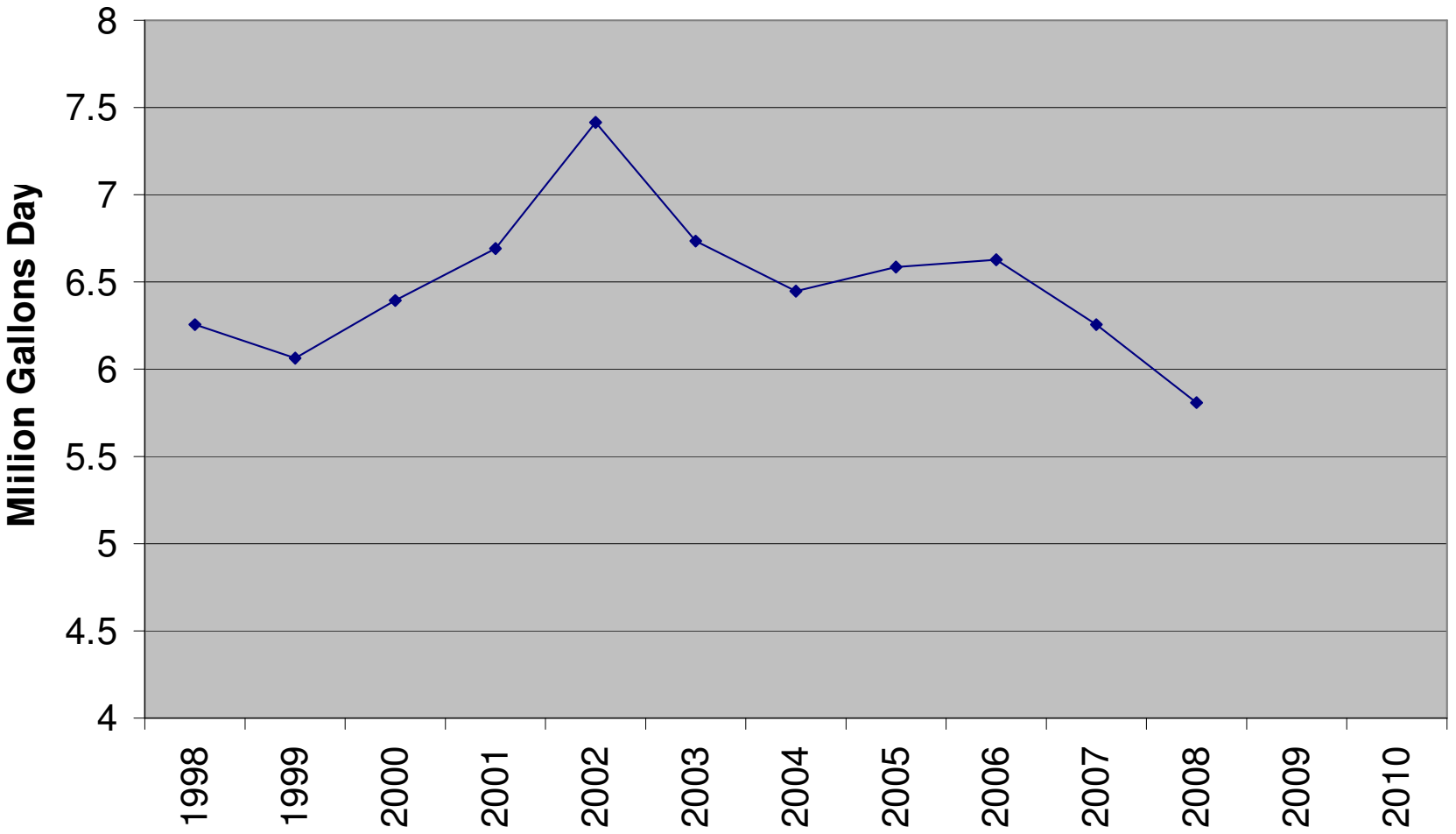
Average Water Diverted Daily



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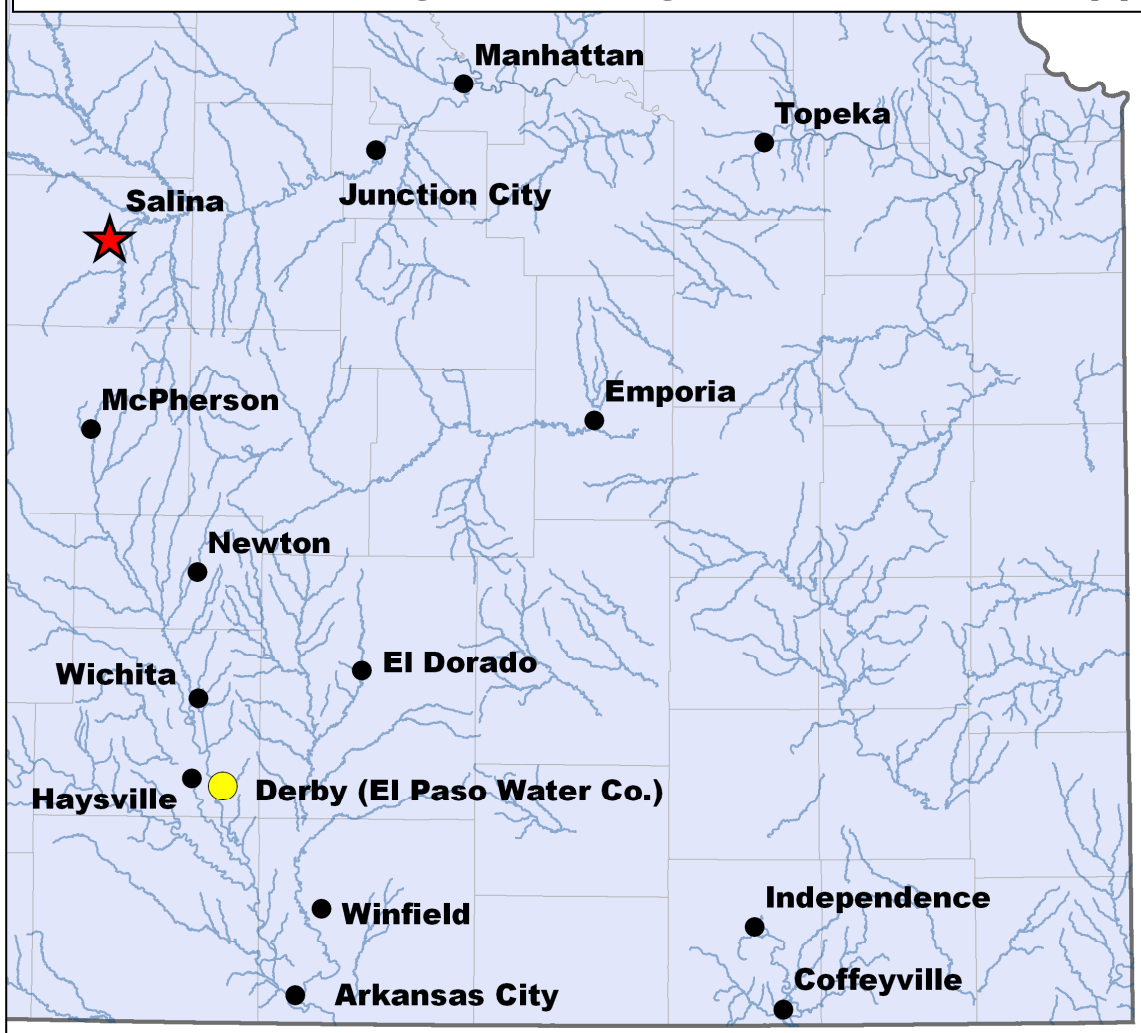
Drought/Emergency Response

City of Salina

2006 KWO & KDHE Drought Vulnerable for Region 7- Large Public Water Suppliers



Basic Source Limitation

The supplier's primary raw water source is particularly sensitive to drought as evidenced by depleted streamflow, depleted reservoir inflow and storage, or by declining water levels in wells. Restrictions imposed due to inability to use a well(s) due to water quality problems were considered indicative of a basic source limitation.

Region 7
Drought Vulnerability

- None
- Basic Source
- Distribution System

Source: 2006 KWO Drought Vulnerable List

City of Salina

Trigger Point Comparison

		Watch	Warning	Emergency
Treatment	Current/Proposed	WTP operations are at 75% of capacity or more for three consecutive days	WTP operations are at 90% of capacity or more for three consecutive days	WTP operations are at 100% of capacity or more for three consecutive days
River	Current	Discharge at Mentor Gage is less than 45 cfs	Discharge at Mentor Gage is less than 30 cfs	Discharge at Mentor Gage is less than 15 cfs
	Proposed (June-September)	Discharge at Mentor Gage is less than 40 cfs and in a generally declining trend for at least 7 consecutive days	Discharge at Mentor Gage is less than 30 cfs and in a generally declining trend for at least 5 consecutive days	Discharge at Mentor Gage is less than 20 cfs and in a generally declining trend for at least 3 consecutive days
	Proposed (October-May)	Discharge at Mentor Gage is less than 30 cfs and in a generally declining trend for at least 7 consecutive days	Discharge at Mentor Gage is less than 20 cfs and in a generally declining trend for at least 5 consecutive days	Discharge at Mentor Gage is less than 15 cfs and in a generally declining trend for at least 3 consecutive days
Groundwater	Current	Depth of water at 3 Monitoring Wells is at least 5 ft below seasonal average	Depth of water at 3 Monitoring Wells is at least 10 ft below seasonal average	Depth of water at 3 Monitoring Wells is at least 15 ft below seasonal average
	Proposed	When groundwater is the only source and the depth of water at Oakdale Monitoring Well is less than 29 ft	When groundwater is the only source and the depth of water at Oakdale Monitoring Well is less than 27 ft	When groundwater is the only source and the depth of water at Oakdale Monitoring Well is less than 25 ft

Stage 1: Water Watch

- **Goal**
  - The goal of this stage is to heighten awareness of the public on water conditions and to maintain the integrity of the water supply system.

- **Education Actions**
  - The City will make occasional news releases to the local media describing present conditions and indicating the water supply outlook for the upcoming season.
  - Previous months summaries of precipitation, temperature, and water levels will be made public at the beginning of each month.

- **Management Actions**
  - Leaks will be repaired within 8 hours of detection.
  - The City will monitor its use of water and will curtail routine activities such as hydrant flushing and street cleaning.

- **Regulation Actions**
  - The public will be asked to curtail some outdoor water use and to make efficient use of indoor water, i.e. wash full loads, take short showers, don't let faucets run, etc.
  - Any other action deemed appropriate by the City Manager.

Stage 2 Water Warning

- **Goal**
  - The goal of this stage is to reduce peak demands by 20% and to reduce overall weekly consumption by 10%.
- **Education Actions**
  - The City will make weekly news releases to the local media describing present conditions and indicating the water supply outlook for the upcoming week.
  - Previous week summaries of precipitation, temperature, and water levels will be made public each Thursday.
- **Management Actions**
  - The City's water supplies will be monitored daily.
  - Leaks will be repaired within 8 hours of detection.
  - Emergency water supplies will be prepared for contingency operation.
  - The City will cease routine water usage, including watering of City grounds and washing of vehicles.
  - The City will contact the Chief Engineer for authorization to require private domestic water well owners to comply with the City's Drought Response Plan per K.S.A. 82a-733(i).
- **Regulation Actions**
  - An odd/even or zoned lawn water system will be imposed on City residents. Residents with odd-numbered addresses will water on odd days, even addresses will water on even days.
  - Commercial/Industrial owners will be allowed to preserve vegetation required by the City's landscaping ordinance.
  - Outdoor water use, including lawn watering and car washing, will be restricted to before 10:00 a.m. and after 6:00 p.m.
  - Refilling of swimming pools will be allowed one day a week after sunset.
  - Waste of water will be prohibited.
  - Home outdoor washing of vehicles will be restricted to one day a week only.
  - Restrictions will be imposed on all City residents (public water supply customers and private domestic water well owners) with authorization by the Chief Engineer as provided by K.S.A. 82a-733(i).
  - Any other action deemed appropriate by the City Manager.

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Stage 3: Water Emergency

- **Goal**
  - The goal of this stage is to reduce peak demands by 50% and to reduce overall weekly consumption by 25%.
- **Education Actions**
  - The City will make daily news releases to the local media describing present conditions and indicating the water supply outlook for the next day.
  - Previous days summaries of precipitation, temperature and water levels will be made public each day.
  - The City will hold public meetings to discuss the emergency, the status of the City's water supply and further actions which need to be taken.
- **Management Actions**
  - The City's water supplies will be monitored daily.
  - Leaks will be repaired within 8 hours of detection.
  - Emergency water supplies will be prepared for contingency operation.
  - The City will seek additional emergency water supplies from state or federal agencies.
- **Regulation Action**
  - Outdoor water use will be banned.
  - Waste of water will be prohibited.
  - Emergency water rates may be imposed.
  - Restrictions will be imposed on all City residents (public water supply customers and private domestic water well owners) with authorization by the Chief Engineer as provided by K.S.A. 82a-733(i).
  - Any other action deemed appropriate by the City Manager.

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Discussion/Questions